Abhishek Ray

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RESEARCH INTERESTS

Economics of Information Technology & Systems, Multi-sided Digital Platforms and Markets – online & offline externalities, Mechanism & Information Design for Social Good.

EMPLOYMENT

School of Business, George Mason University
Assistant Professor (2019 - Present)
Information Systems & Operations Management Area

- Instructor for MIS303 – Introduction to Business Information Systems
- **Affiliated Faculty** – the Institute for Digital Innovation, George Mason University.
- **Affiliated Faculty** – the Business for a Better World Center, George Mason University.

EDUCATION

Krannert School of Management, Purdue University
PhD, Information Systems (2014 - 2019)
Committee - Karthik Kannan (Co-Chair), Hossein Ghasemkhani (Co-Chair), Mario Ventresca, Thanh Nguyen.

- Dissertation: "Scalability & Business Outcomes: Essays on Managing Trade-Offs when Fringe Technologies go Mainstream"

School of Industrial Engineering, Purdue University
M.S., Industrial Engineering (2015 - 2017)

- Specialization - Operations Research

Department of Economics, Purdue University
M.S., Economics (2014 - 2016)

- Specialization - Mathematical Economics & Industrial Organization

Institute of Management Technology, Ghaziabad, India
MBA, Marketing & Operations (2009 - 2011)

National Institute of Technology, Allahabad, India
B.Tech, Electrical Engineering (2003 - 2007)

JOURNAL PUBLICATIONS

- A Graph Based Ant Algorithm Approach for the Winner Determination Problem in Combinatorial Auctions – joint work with Mario Ventresca, Karthik Kannan (*forthcoming at* **Information Systems Research**).

REFEREED CONFERENCE PROCEEDINGS

- Ray, A. and Ventresca, M., 2018, April. "An Ant Colony Approach for the Winner Determination Problem". In *European Conference on Evolutionary Computation in Combinatorial Optimization* (pp. 174-188). Springer, Cham., Parma, Italy, 2018.
- Ray, A., Ghasemkhani, H. and Kannan, K.N., 2017. "Ad-Blockers, Advertisers, and Internet: The Economic Implications of Ad-Blocker Platforms" *Proceedings of the International Conference on Information Systems*, Seoul, South Korea, 2017.
- Ray, A., Ventresca, M. and Wan, H., 2018, July. "A Mechanism Design Approach to Blockchain Protocols." In *2018 IEEE International Conference on Internet of Things (iThings) and IEEE Green Computing and Communications (GreenCom) and IEEE Cyber, Physical and Social Computing (CPSCom) and IEEE Smart Data (SmartData) (pp. 1603-1608).* IEEE.

WORKING PAPERS

- Contracting with Contingent Heterogeneous Externalities: The Case of Cryptocurrency Mining Pools – joint work with Mario Ventresca, Xinqi Gao, Hong Wan (*under 1st round of review at* **The Review of Financial Studies**).
- Bayesian Model Averaging for Data Driven Decision Making when Causality is Partially Known – joint work with Marios Papamichalis, Ilias Bilionis & Karthik Kannan (*under preparation for submission* **Management Science**).

RESEARCH IN PROGRESS

- Strategic Publishers, Fraud Detection Configurations & Click Fraud – (joint work with Min Chen & Subodha Kumar)
- Human Trafficking Identification: A Surveillance Resource Allocation Approach – (joint work with Viplove Arora, Kayse Maass & Mario Ventresca)
- Optimal Feedback Mechanisms for an Experience Good – (joint work with Hang Ren & Ioannis Bellos)
- Political Slant and the Evolution of Echo Chambers – (joint work with Jesse Shore & Brad Greenwood)

CONFERENCE & WORKSHOP

- Ray, A., Ventresca, M. and Wan, H. "A Mechanism Design Approach to Blockchain Protocols" IEEE International Conference on Blockchain (**IEEE**), Halifax, Canada, July 2018.
- Ray, A., Ventresca, M. and Kannan, K. "TrACA: Solving the Winner Determination problem in Combinatorial Auctions using Metaheuristics" Conference on Data Science for Business and Economics (**BIAC**), Purdue University, May 2018.
- Ray, A., Quinn, C.J., Ghasemkhani, H. "How does the Internet impact Housing Markets? A Dynamic Bayesian Network Approach" **POMS** Annual Conference, Houston, May 2018.

- Ray, A., Ventresca, M. "Decentralized or Self-Centralized? An Automated Mechanism Design approach to Blockchain protocols" **POMS** Annual Conference, Houston, May 2018.
- Ray, A., Ventresca, M. "An Ant Colony Approach to solving the Winner Determination problem" The 18th European Conference on Evolutionary Computation in Combinatorial Optimization (**EVOCOP**), Parma, Italy, April 2018.
- Ray, A., Ghasemkhani, H. and Kannan, K. "Ad-Blockers, Advertisers & the Internet - The Economic Implications of Ad-Blocking" International Conference on Information Systems (**ICIS**), Seoul, December 2017.
- Ray, A., Ventresca, M. and Kannan, K. "TrACA: Using Ant Colony Optimization to solve the Winner Determination problem in Combinatorial Auctions" Workshop on Information Technologies & Systems (**WITS**), Seoul, December 2017.
- Ray, A., Ghasemkhani, H. and Kannan, K. "Ad-Blockers: Extortionists or Digital Age Robin Hoods?" Conference on Information Systems and Technology (**CIST**), Houston, October 2017.

INVITED TALKS & PRESENTATIONS

- Ray, A., Ventresca, M. and Kannan, K. "A Graph Based Ant Algorithm Approach for the Winner Determination Problem in Combinatorial Auctions" **College of IS&T, University of Nebraska,** Omaha, October 2018.
- Ray, A., Ventresca, M. and Kannan, K. "A Graph Based Ant Algorithm Approach for the Winner Determination Problem in Combinatorial Auctions" **McIntire College of Commerce, University of Virginia** Charlottesville, October 2018.
- Ray, A., Ventresca, M. and Kannan, K. "Using Swarm Intelligence to solve the Winner Determination problem in Combinatorial Auctions" **POMS** Annual Conference, Houston, May 2018.
- Ray, A., Ventresca, M. and Kannan, K. "An Ant Colony Approach for the Winner Determination Problem in Combinatorial Auctions" **Lundquist College of Business, University of Oregon** Eugene, December 2017.
- Ray, A., Ghasemkhani, H. and Kannan, K. "Ad-Blockers, Advertisers & the Internet - The Economic Implications of Ad-Blocking" Seminar on Online User Privacy at Center for Education & Research on Information Assurance & Security (**CERIAS**), Purdue University, November 2017. (*Link: https://bit.ly/2up0g1F*)
- Ray, A., Ventresca, M. and Kannan, K. "TrACA: Using Ant Colony Metaheuristics for the Winner Determination Problem" **INFORMS** Annual Meeting, Houston, October 2017.

- Ray, A., Ghasemkhani, H. and Kannan, K. "Ad-Blockers vs. Advertisers The Economic Implications of Ad-Blocking" **POMS** Annual Conference, Seattle, May 2017.
- Ray, A., Ghasemkhani, H. and Kannan, K. "The Economic Implications of Ad-Blockers on the Internet" **INFORMS** Annual Meeting, Nashville, November 2016.

AWARDS & HONORS

- "Ad-Blockers, Advertisers & the Internet The Economic Implications of Ad-Blocking" - Nominated for **Most Innovative Short Paper Award** at ICIS 2017.
- Krannert Certificate for Distinguished Teaching (Highest Honor), 2017 & 2018.
- Krannert Graduate Assistant Scholarship, 2016-17.
- Award for research contribution to Consulting Knowledge Repository at Wipro, 2013.
- Academic Commendation for performance as exchange student at Nottingham Trent University, United Kingdom 2010.
- Finalist at IIT Bombay, All India Technology Entrepreneurship Conclave, 2011.
- Finalist at Technology Marketing Case Study Challenge, IMT Ghaziabad All India Marketing Summit, 2010.

ACADEMIC SERVICES

- **POMS Doctoral Consortium 2018** - Participant.
- **Conference Reviewer** - International Conference on Information Systems (2016-17), European Conference on Information Systems (2016), Conference on Information Systems & Technology (2016), Workshop on Information Technology & Systems (2016-17).
- **Journal Reviewer** – ISR, EJOR, Computers & OR, Management Science.
- **Professional Membership** - INFORMS, AIS, POMS, SIAM.
- Session Chair - Product Innovation & Technology Management, POMS 2018, Houston, TX.
- Session Chair - Economics of Online Platforms, INFORMS 2019, Seattle, WA.
- Member - **Purdue Blockchain Lab** at School of Industrial Engineering, Purdue University.
- Affiliate Faculty **– Institute for Digital Innovation**, George Mason University.

TEACHING EXPERIENCE

Krannert School of Management, Purdue University
Summer Instructor (2017 - 2018)

- Instructor for summer edition of Introduction to Management Information Systems.
- Overall evaluation $4.7/5$ (2017) & $4.8/5$ (2018).

Krannert School of Management, Purdue University
Teaching Assistant (2014-2017)

- Teaching Assistant for Fall & Spring editions of - Introduction to MIS, Computer Communication Systems, Electronic Commerce & Information Strategies, Digital Business & Information Strategies.

Wipro Ltd., India
Workshop Instructor (2013)

- Conducted workshop for Marketing Managers across Western India on Service Differentiators for IT-Enabled offerings.

IMT Ghaziabad, India
Seminar Instructor (2011)

- Conducted seminar on "Bass Diffusion Models in Technology Adoption Markets - an analysis".

INDUSTRY RESEARCH EXPERIENCE

Facebook, Menlo Park, CA
Research Associate (2018)

- Research to identify and build models applicable to identify causal relationships in data.
- Work with Engineering teams to explore and capture metrics that capture health of select applications of interest.

Wipro Ltd., Bangalore, India
Practice Analyst (2011-2014)

- Conducted & led research teams on projects studying improving business processes through IT Service Automation.
- Conducted research into issues and resolution of implementing 'Enterprise 2.0' in organizations.

ZENeSYS Consulting, Bangalore, India
Research Analyst (Part-time), (2010-2014)

- Conducted & led research teams on projects studying impact of technology trends on business, such as Network Function Virtualization.

TECHNICAL SKILLS

- **Programming** - *RStudio, C, C++, Java, Python, webMethods 6.5, MS Access, SQL.*
- **Analytics** - *SPSS, MATLAB, RStudio, Mathematica., Maple, AnyLogic*

- **Process Oriented -** *CMMi, LEAN, Agile, ITIL.*
- **Research Oriented -** Econometrics, Bayesian Networks, Principal Component Analysis, Support Vector Machines, Matrix Completion Algorithms, Linear & Non-linear programming algorithms, Genetic Algorithms, Memetic Algorithms, Neural Networks, Swarm Intelligence.

REFERENCES

- Professor Karthik N. Kannan *kkarthik@purdue.edu*
- Professor Hossein Ghasemkhani *hossein@purdue.edu*
- Professor Mario Ventresca *mventresca@purdue.edu*
- Professor Thanh Nguyen *nguye161@purdue.edu*